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SALAMA - Swahili Language Manager
2018

Hurskainen , A 2018 , Subject and object case in English to Finnish Machine Translation . in
SALAMA - Swahili Language Manager : Technical reports on LT . Technical reports on
language technology , no. 29 , SALAMA - Swahili Language Manager , Helsinki .

<http://hdl.handle.net/10138/310895>

unspecified
publishedVersion

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Subject and object case in English to Finnish Machine Translation

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Abstract

English and Finnish are different in how they encode such syntactic constituents as subject and object. English has no encoding at all. Principally the word order defines whether a word is a subject, object, or indirect object. Finnish uses cases for encoding such differences. The default in Finnish is that the subject is in nominative, the object in accusative or partitive, and the indirect object in allative. There are, however, exceptions to the default encoding. The report discusses various problems in translating such structures

Key Words: *machine translation, subject, object.*

1 Introduction

English is straightforward in expressing the subject, the object, and the indirect object. English cannot use cases for marking such constituents, because the language has only the nominative and genitive case. Obviously, the subject should be in nominative case, that is, in the base form. The object and indirect object are also in nominative case. If the sentence has both types of object, their order defines which is which. Also, the transitivity of verbs is unmarked in English, which causes a lot of ambiguity.

In Finnish the situation is totally different. By default, the subject is in nominative, although also some other cases occur. The object may have three different forms, partitive, genitive accusative, and nominative accusative. They are not alternatives. Only one of them is grammatically correct in each context. Finnish also marks clearly transitive versions of the verb by inserting a transitive suffix. Therefore, Finnish text leaves no type of ambiguity in basic clause structures.

When we consider translation from English to Finnish, the major problem is the correct analysis of the English text. The multiple ambiguity of English words is very challenging, and it is almost impossible to get a completely faultless analysis of English text. When the subject, object and indirect object have the base form (in singular or plural), the tagging must be based on word order, and possibly on the main verb. Very often, however, the main verb may be transitive or intransitive, and that must be disambiguated.

Assuming that we have the correctly analysed English text, we have to convert it into correct Finnish form. We get no glue from the source text on whether the subject should be in nominative or in some other case. Also, we get no information on whether the object should be in partitive or accusative, and if in accusative, which one of the two

accusative forms. We also must decide, whether the verb is in transitive or intransitive role.

2 Translating the subject

The default form of the subject is nominative. Consider the example in (1).

(1)
"<He>"
"he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<walks>"
"walk" { kävellä V67 FRONT } %+FMAINV MOVE V PRES SG
"<.>"
"." { . }

Hän kävelee.

The subject case can also be adessive (2).

(2)
"<He>"
"he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
ADE
"<has>"
"have" { olla V67b } %+FMAINV S-ADE O-PAR O-ACC-N V PRES SG
"<book>"
"book" { kirja N9 } %OBJ INDEF N SG ACC-N
"<.>"
"." { . }

Hänellä on kirja.

In some cases, the subject case can be genitive (3).

(3)
"<He>"
"he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
GEN
"<should>"
"should" { pitäisi } %+FAUXV V AUXMOD SG
"<eat>"
"eat" { syödä V64 FRONT } %-FMAINV O-PAR V INF SG
"<.>"
"." { . }
"<He>"
"he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
GEN
"<ought>"

```

    "ought" { pitäisi } %+FAUXV V PRES SG
"<to>"
    "to" { NOGLOSS } %INFMARK> INFMARK>
"<eat>"
    "eat" { syödä V64 FRONT } %-FMAINV O-PAR V INF SG
"<.>"
    "." { . }
"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
GEN
"<shall>"
    "shall" { pitää V53-F FRONT } %+FAUXV S-GEN V AUXMOD SG
"<eat>"
    "eat" { syödä V64 FRONT } %-FMAINV O-PAR V INF SG
"<.>"
    "." { . }
"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
GEN
"<must>"
    "must" { täytyy } %+FAUXV S-GEN %AUX V AUXMOD SG
"<eat>"
    "eat" { syödä V64 FRONT } %-FMAINV O-PAR V INF SG
"<.>"
    "." { . }

```

Hänen pitäisi syödä.
Hänen pitäisi syödä.
Hänen pitää syödä.
Hänen täytyy syödä.

There are also cases, where the same verb needs a different subject case depending on the clause structure. Consider the example in (4).

```

(4)
"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<needs>"
    "need" { tarvita V69 } %+FMAINV O-PAR V-3INF-ILL V PRES SG
"<book>"
    "book" { kirja N9 } %OBJ DEF N SG PAR
"<.>"
    "." { . }
"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
GEN
"<needs>"
    "need" { tarvitsee } %+FMAINV S-GEN V-3INF-ILL V PRES SG
"<to>"

```

```
"to" { NOGLOSS } %INFMARK> INFMARK>
"<go>"
"go" { mennä V67 FRONT } %-FMAINV O-LOC3 MOVE V INF SG INF
"<.>"
"." { . }
```

Hän tarvitsee kirjaa.
Hänen tarvitsee mennä.

Also elative can be the case of the subject. Consider the example in (5).

(5)

```
"<He>"
"he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<becomes>"
"become" { tulla V67 } %+FMAINV S-NOM O-TRA V-3INF-ILL V
PRES SG
"<rich>"
"rich" { rikas N41-A } %PCOMPL-S A ABS SG TRA
"<.>"
"." { . }
```

Hän tulee rikkaaksi.

In (5), the subject is in nominative, but the sentence can be translated also with another structure (6).

(6)

```
"<He>"
"he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
ELA
"<becomes>"
"become" { tulla V67 } %+FMAINV S-ELA O-ACC-N V-3INF-ILL V
PRES SG @SG
"<king>"
"king" { kuningas N41-G } %PCOMPL-S HUM INDEF N N-ING SG
ACC-N
"<.>"
"." { . }
```

Hänestä tulee kuningas.

Another example is the verb *feel*. Its subject can be in nominative or elative, depending on sentence structure (7).

(7)

```
"<I>"
"i" { minä Np5 } %SUBJ HUM OUT PRON PERS SG1 ELA
```

```
"<feel>"
    "feel" { tuntua V52-J } %+FMAINV S-ELA O-ABL V PRES SG1
"<that>"
    "that" { , että } %CS CS
"<I>"
    "i" { minä Np5 } %SUBJ HUM OUT PRON PERS SG1 GEN
"<should>"
    "should" { pitäisi } %+FAUXV V AUXMOD SG1
"<go>"
    "go" { mennä V67 FRONT } %-FMAINV O-LOC3 MOVE V INF SG1
"<.>"
    "." { . }
"<I>"
    "i" { minä Np5 } %SUBJ HUM OUT PRON PERS SG1 NOM
"<feel>"
    "feel" { tuntea V59-J } %+FMAINV O-ACC V PRES SG1
"<it>"
    "it" { se Np11 FRONT } %OBJ OUT PRON SG3 ACC
"<in>"
    "in" { M-LOC1 } %ADVL PREP
"<my>"
    "i" { NOGLOSS } %A> HUM OUT PRON PERS SG1 GEN
"<mouth>"
    "mouth" { suu N18 } %<P IN DEF N SG1 INE @POS-SG1
"<.>"
    "." { . }
```

Minusta tuntuu, että minun pitäisi mennä.
Minä tunnen sen suussani.

The ablative case for a subject is used when the main verb is *lack* (8).

```
(8)
"<We>"
    "we" { me Np6 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS PL1
ABL
"<lack>"
    "lack" { puuttua V52-C } %+FMAINV O-ACC S-ABL V PRES SG
"<suitable>"
    "suitable" { sopiva N10 } %A> VA A ABS PL @PAR
"<methods>"
    "method" { menetelmä N10 FRONT } %OBJ N PL PAR
"<for>"
    "for" { M-ALL } %ADVL POST PREP
"<doing>"
    "do" { tehdä V71 FRONT } %<P-FMAINV O-ACC V ING SG 4INF-TRA
"<it>"
    "it" { se Np11 FRONT } %OBJ OUT PRON SG3 ACC
"<.>"
    "." { . }
```

Meiltä puuttuu sopivia menetelmiä sen tekemiseksi.

The subject may have also the illative case. Consider the example in (9).

(9)

```
"<car>"
  "car" { auto N1 } %SUBJ VEH DEF N SG ILL
"<can>"
  "can" { voida V62 } %+FAUXV V AUXMOD SG PRES
"<seat>"
  "seat" { mahtua V52-F istumaan } %-FMAINV O-PAR S-ILL SPO V
INF SG
"<total_of>"
  "total_of" { kaikkiaan } ADV MW
"<five>"
  "five" { viisi N27 FRONT } %QN> NUM-PL CARD NUM SG
"<people>"
  "people" { ihminen N38 FRONT } %<P HUM N SG PAR
"<.>"
  "." { . }
```

Autoon voi mahtua istumaan kaikkiaan viisi ihmistä.

But in other cases the subject is in nominative (10).

(10)

```
"<We>"
  "we" { me Np6 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS PL1
NOM
"<will>"
  "will" { NOGLOSS } %+FAUXV V AUXMOD PL1 PRES
"<seat>"
  "seat" { panna V67 istumaan } %-FMAINV O-ACC SPO V INF PL1
PRES @PL1
"<her>"
  "she" { hän Np9 FRONT } %OBJ OUT HUM PRON PERS SG3 ACC
"<into>"
  "into" { NOGLOSS M-ILL } %ADVL PREP
"<car>"
  "car" { auto N1 } %<P VEH DEF N SG ILL
"<.>"
  "." { . }
```

Me panemme hänet istumaan autoon.

3 Translating the object: clear cases

In Finnish, the object has three cases, partitive, genitive accusative, and nominative accusative. Whether the object should be in genitive accusative or nominative accusative is defined clearly by rules. Therefore, the challenge is in constructing the rule system for all possible cases. The choice between partitive and accusative is more difficult, because there are no definite rules for doing the choice. In general, accusative is used when the object is clearly defined, and partitive in other cases.

Consider the examples in (11).

- (11)
- (a) "<He>"
"he" %SUBJ CAPINIT PRON PERS NOM SG3
"<brought>"
"bring" %+FMAINV V PAST
"<the>"
"the" %DN> DET
"<book>"
"book" %OBJ N SG DEF
"<.>"
". "
- (b) "<He>"
"he" %SUBJ CAPINIT PRON PERS NOM SG3
"<brought>"
"bring" %+FMAINV V PAST
"<a>"
"a" %DN> DET SG
"<book>"
"book" %OBJ N SG INDEF
"<.>"
". "
- (c) "<He>"
"he" %SUBJ CAPINIT PRON PERS NOM SG3
"<brought>"
"bring" %+FMAINV V PAST
"<books>"
"book" %OBJ N PL
"<.>"
". "
- (d) "<He>"
"he" %SUBJ CAPINIT PRON PERS NOM SG3
"<brought>"
"bring" %+FMAINV V PAST
"<the>"
"the" %DN> DET
"<books>"
"book" %OBJ N PL DEF
"<.>"
". "

In (11) are all four basic forms of the object, indefinite singular, definite singular, indefinite plural, and definite plural. In (12) below, the articles are removed, but the information on definiteness is encoded on the noun. This information is used for defining the case of the object.

(12)

(a) "<He>"

```
"he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<brought>"
"bring" { tuoda V64 } %+FMAINV TRV O-ALL V PAST SG
"<book>"
"book" { kirja N9 } %OBJ DEF N SG ACC
"<.>"
"." { . }
```

(b) "<He>"

```
"he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<brought>"
"bring" { tuoda V64 } %+FMAINV TRV O-ALL V PAST SG
"<book>"
"book" { kirja N9 } %OBJ INDEF N SG ACC
"<.>"
"." { . }
```

(c) "<He>"

```
"he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<brought>"
"bring" { tuoda V64 } %+FMAINV TRV O-ALL V PAST SG
"<books>"
"book" { kirja N9 } %OBJ INDEF N PL PAR
"<.>"
"." { . }
```

(d) "<He>"

```
"he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<brought>"
"bring" { tuoda V64 } %+FMAINV TRV O-ALL V PAST SG
"<books>"
"book" { kirja N9 } %OBJ DEF N PL ACC
"<.>"
"." { . }
```

(a) *Hän toi kirjan.*

(b) *Hän toi kirjan.*

(c) *Hän toi kirjoja.*

(d) *Hän toi kirjat.*

We see that three of them are in nominative accusative and only one in partitive. We could consider then that when the object is indefinite plural, it is likely to get partitive interpretation. However, this is not a general rule, and the problem cannot be resolved on the basis of definiteness and number.

We should seek the solution from verbs, because there are verbs, which always require partitive form in object. Consider the example in (13).

- (13)
- (a) "<He>"
 "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
 NOM
 "<loves>"
 "love" { rakastaa V53 } %+FMAINV O-PAR V-4INF-PAR V PRES SG
 "<good>"
 "good" { hyvä N10 FRONT } %A> A ABS SG @PAR
 "<food>"
 "food" { ruoka N10-D } %OBJ N SG PAR
 "<.>"
 "." { . }
- (b) "<He>"
 "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
 NOM
 "<obeys>"
 "obey" { totella V67-C } %+FMAINV O-PAR V PRES SG
 "<command>"
 "command" { komento N1-J } %OBJ DEF N SG PAR
 "<.>"
 "." { . }
- (c) "<He>"
 "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
 NOM
 "<observes>"
 "observe" { tarkkailla V67 } %+FMAINV O-PAR V PRES SG
 "<clouds>"
 "cloud" { pilvi N7 FRONT } %OBJ DEF N PL PAR
 "<.>"
 "." { . }

(a) Hän rakastaa hyvää ruokaa.

(b) Hän tottelee komentoa.

(c) Hän tarkkailee pilviä.

In (13), all three verbs always require the object in partitive. Definiteness and number of the object have no effect on the case.

Then there are verbs, which may require partitive or accusative case depending on meaning (14).

- (14)
 "<I>"

```

    "i" { minä Np5 } %SUBJ HUM OUT PRON PERS SG1 NOM
"<missed>"
    "miss" { hukata V73-A } %+FMAINV TRV V PAST SG1
"<road>"
    "road" { tie N19b FRONT } %OBJ OUT DEF N SG ACC
"<.>"
    "." { . }
"<I>"
    "i" { NOGLOSS } %SUBJ HUM OUT PRON PERS SG1 CAPINIT NOM
"<miss>"
    "miss" { kaivata V73-E } %+FMAINV O-PAR V PRES SG1
"<her>"
    "she" { hän Np9 FRONT } %OBJ OUT HUM PRON PERS SG3 PAR
"<very>"
    "very" { hyvin } %AD-A> ADV
"<much>"
    "much" { paljon } %ADVL PL ADV ABS
"<.>"
    "." { . }

```

*Minä hukkasin tien.
 Kaipaen häntä hyvin paljon.*

The semantic content of some verbs is such that only accusative case is possible. If the verb expresses non-continuous action, accusative is the correct case. Examples in (15) illustrates this.

(15)

```

"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<murdered>"
    "murder" { murhata V73 } %+FMAINV TRV V PAST SG
"<man>"
    "man" { mies N42 FRONT } %OBJ HUM DEF N SG ACC
"<.>"
    "." { . }
"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<nominated>"
    "nominate" { nimittää V53-C FRONT } %+FMAINV TRV V-3INF-ILL
V PAST SG
"<professor>"
    "professor" { professori N6 } %OBJ HUM TITLE NOPROP DEF N
SG ACC
"<.>"
    "." { . }

```

Hän murhasi miehen.

Hän nimitti professorin.

On the other hand, if the object is in plural, also partitive is possible. Here, the decisive factor is whether the object is definite or indefinite (16).

(16)

(a) "<He>"

"he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3

NOM

"<murdered>"

"murder" { murhata V73 } %+FMAINV TRV V PAST SG

"<men>"

"man" { mies N42 FRONT } %OBJ HUM DEF N PL ACC

"<.>"

"." { . }

(b) "<He>"

"he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3

NOM

"<nominated>"

"nominate" { nimittää V53-C FRONT } %+FMAINV TRV V-3INF-ILL

V PAST SG

"<professors>"

"professor" { professori N6 } %OBJ HUM TITLE NOPROP DEF N PL

ACC

"<.>"

"." { . }

(c) "<He>"

"he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3

NOM

"<murdered>"

"murder" { murhata V73 } %+FMAINV TRV V PAST SG

"<men>"

"man" { mies N42 FRONT } %OBJ HUM N PL PAR

"<.>"

"." { . }

(d) "<He>"

"he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3

NOM

"<nominated>"

"nominate" { nimittää V53-C FRONT } %+FMAINV TRV V-3INF-ILL

V PAST SG

"<professors>"

"professor" { professori N6 } %OBJ HUM TITLE NOPROP N PL PAR

"<.>"

"." { . }

(a) *Hän murhasi miehet.*

(b) *Hän nimitti professorit.*

(c) *Hän murhasi miehiä.*

(d) *Hän nimitti professoreja.*

Examples (c) and (d) have an indefinite plural object. Therefore, the object is in partitive.

In some cases, the object may get also the elative case (17).

(17)

```
"<We>"
  "we" { me Np6 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS PL1
NOM
"<negotiated>"
  "negotiate" { neuvotella V67-C } %+FMAINV O-ELA V PAST PL1
"<problem>"
  "problem" { ongelma N10 } %OBJ DEF N SG ELA
"<.>"
  "." { . }
"<We>"
  "we" { me Np6 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS PL1
NOM
"<negotiated>"
  "negotiate" { neuvotella V67-C } %+FMAINV O-ELA V PAST PL1
"<problems>"
  "problem" { ongelma N10 } %OBJ DEF N PL ELA
"<.>"
  "." { . }
"<I>"
  "i" { minä Np5 } %SUBJ HUM OUT PRON PERS SG1 NOM
"<like>"
  "like" { pitää V53-F FRONT } %+FMAINV O-ELA V-3INF-ELA V
PRES SG1
"<him>"
  "he" { hän Np9 FRONT } %OBJ OUT HUM PRON PERS SG3 ELA
"<.>"
  "." { . }
```

Me neuvottelimme ongelmasta.

Me neuvottelimme ongelmista.

Minä pidän hänestä.

Illative is frequently the object case. Consider examples in (18).

(18)

```
"<He>"
  "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<answered>"
  "answer" { vastata V73 } %+FMAINV O-ILL V PAST SG
"<question>"
  "question" { kysymys N39 FRONT } %OBJ DEF N SG ILL
"<.>"
```

```
"." { . }
"<He>"
  "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<attended>"
  "attend" { osallistua V52 } %+FMAINV O-ILL V PAST SG
"<meeting>"
  "meeting" { kokous N39 } %OBJ IN DEF N N-ING SG ILL
"<.>"
  "." { . }
"<He>"
  "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<confronted>"
  "confront" { törmätä V73 FRONT } %+FMAINV O-ILL V PAST SG
"<issue>"
  "issue" { kysymys N39 FRONT } %OBJ DEF N SG ILL
"<.>"
  "." { . }
"<He>"
  "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<contacted>"
  "contact" { ottaa V53-C yhteyttä } %+FMAINV O-ILL V PAST SG
"<them>"
  "they" { ne Np12 FRONT } %OBJ PRON PERS PL3 ILL
"<.>"
  "." { . }
"<He>"
  "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<impressed>"
  "impress" { vaikuttaa V53-C } %+FMAINV O-ILL V PAST SG
"<me>"
  "i" { minä Np5 } %OBJ HUM OUT PRON PERS SG1 ILL
"<.>"
  "." { . }
```

Hän vastasi kysymykseen.
Hän osallistui kokoukseen.
Hän törmäsi kysymykseen.
Hän otti yhteyttä niihin.
Hän vaikutti minuun.

4 Translating the object: problematic cases

The majority of objects are such that they can be in partitive or accusative case, and no definite rules can be written for selecting the correct case in each context. Above we observed that if the object is indefinite plural, it is likely that it should be in partitive. But this is only an approximation.

One possible approach is that each verb in the lexicon is marked with the tag O-PAR or TRV, depending on which one is the most obvious one. Then the inflection tag is added to the object on the basis of the tag in the verb.

It is also possible to use the default case, which method would simplify the process. Accusative can be taken as default. It need not be marked on the verb specifically. Only the tag TRV (transitive verb) on the verb is needed. The rule for adding the accusative tag on the object can be written on the basis of the tag TRV, if the verb has no other tags for indicating the object case (19).

```
(19)
"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<infected>"
    "infect" { tartuttaa V53-C } %+FMAINV TRV V PAST SG
"<disease>"
    "disease" { tauti N5-F } %OBJ DIS DEF N SG ACC
"<.>"
    "." { . }
"<They>"
    "they" { ne Np12 FRONT } %SUBJ CAPINIT PRON PERS PL3 NOM
"<inhabited>"
    "inhabit" { asuttaa V53-C } %+FMAINV TRV V PAST PL
"<country>"
    "country" { maa N18 } %OBJ MAA DEF N SG ACC
"<.>"
    "." { . }
"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<inherited>"
    "inherit" { periä V61 FRONT } %+FMAINV TRV V PAST SG
"<house>"
    "house" { talo N1 } %OBJ DEF N SG ACC
"<.>"
    "." { . }
"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<interchanged>"
    "interchange" { vaihtaa V56-F } %+FMAINV TRV V PAST SG
"<crew>"
    "crew" { miehistö N2 FRONT } %OBJ HUM DEF N SG ACC
"<.>"
    "." { . }
```

Hän tartutti taudin.

Ne asuttivat maan.

Hän peri talon.

Hän vaihtoi miehistön.

Also, in such cases, where the object is indefinite plural, the object case tends to be partitive, although the verb is tagged with TRV. We put the objects of the previous examples in indefinite plural, and we get the result as in (20).

```
(20)
"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<infected>"
    "infect" { tartuttaa V53-C } %+FMAINV TRV V PAST SG
"<diseases>"
    "disease" { tauti N5-F } %OBJ DIS INDEF N PL PAR
"<.>"
    "." { . }
"<They>"
    "they" { ne Np12 FRONT } %SUBJ CAPINIT PRON PERS PL3 NOM
"<inhabited>"
    "inhabit" { asuttaa V53-C } %+FMAINV TRV V PAST PL
"<countries>"
    "country" { maa N18 } %OBJ MAA INDEF N PL PAR
"<.>"
    "." { . }
"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<inherited>"
    "inherit" { periä V61 FRONT } %+FMAINV TRV V PAST SG
"<houses>"
    "house" { talo N1 } %OBJ INDEF N PL PAR
"<.>"
    "." { . }
"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<interchanged>"
    "interchange" { vaihtaa V56-F } %+FMAINV TRV V PAST SG
"<crews>"
    "crew" { miehistö N2 FRONT } %OBJ HUM INDEF N PL PAR
"<.>"
    "." { . }
```

Hän tartutti tauteja.
Ne asuttivat maita.
Hän peri taloja.
Hän vaihtoi miehistöjä.

If we put the object into definite plural, we get the accusative case for the object (21).

(21)


```
"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<infected>"
    "infect" { tartuttaa V53-C } %+FMAINV TRV V PAST SG
"<diseases>"
    "disease" { tauti N5-F } %OBJ DIS DEF N PL ACC
"<.>"
    "." { . }
"<They>"
    "they" { ne Np12 FRONT } %SUBJ CAPINIT PRON PERS PL3 NOM
"<inhabited>"
    "inhabit" { asuttaa V53-C } %+FMAINV TRV V PAST PL
"<countries>"
    "country" { maa N18 } %OBJ MAA DEF N PL ACC
"<.>"
    "." { . }
"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<inherited>"
    "inherit" { periä V61 FRONT } %+FMAINV TRV V PAST SG
"<houses>"
    "house" { talo N1 } %OBJ DEF N PL ACC
"<.>"
    "." { . }
"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
NOM
"<interchanged>"
    "interchange" { vaihtaa V56-F } %+FMAINV TRV V PAST SG
"<crews>"
    "crew" { miehistö N2 FRONT } %OBJ HUM DEF N PL ACC
"<.>"
    "." { . }
```

Hän tartutti taudit.

Ne asuttivat maat.

Hän peri talot.

Hän vaihtoi miehistöt.

The above descriptions give the view on how objective cases can be controlled with rather general rules. There are, however, several cases, where various context constraints must be made use of for defining the correct object case.

5 Nominative accusative case

Accusative in Finnish has two forms, one being close to nominative (but not precisely), and the other being close to genitive (but not precisely). The form of nominative proper

and nominative accusative differs in pronouns. The same applies to the genitive proper and genitive accusative.

Nominative accusative is an alternative to genitive accusative, and it is used in certain syntactic structures. Nominative accusative is not an alternative to partitive case. A common case where nominative accusative is used is imperative sentence (22).

```
(22)
"<Take>"
    "take" { ottaa V53-C } %+FMAINV TRV V-3INF-ILL CAPINIT V IMP
SG2
"<book>"
    "book" { kirja N9 } %OBJ DEF N SG ACC-N
"<.>"
    "." { . }
"<Take>"
    "take" { ottaa V53-C } %+FMAINV TRV V-3INF-ILL CAPINIT V IMP
SG2
"<books>"
    "book" { kirja N9 } %OBJ DEF N PL ACC-N
"<.>"
    "." { . }
"<Bring>"
    "bring" { tuoda V64 } %+FMAINV TRV O-ALL CAPINIT V IMP SG2
"<newspaper>"
    "newspaper" { sanomalehti N7-F FRONT } %OBJ IN DEF N SG ACC-
N
"<.>"
    "." { . }
"<Bring>"
    "bring" { tuoda V64 } %+FMAINV TRV O-ALL CAPINIT V IMP SG2
"<newspapers>"
    "newspaper" { sanomalehti N7-F FRONT } %OBJ IN DEF N PL ACC-
N
"<.>"
    "." { . }
```

Ota kirja.

Ota kirjat.

Tuo sanomalehti.

Tuo sanomalehdet.

But also here, if the object case otherwise would be partitive, also here it is partitive (23).

```
(23)
"<Take>"
    "take" { ottaa V53-C } %+FMAINV TRV V-3INF-ILL CAPINIT V IMP
SG2
"<books>"
    "book" { kirja N9 } %OBJ INDEF N PL PAR
```

```
"<.>"
  "." { . }
"<Bring>"
  "bring" { tuoda V64 } %+FMAINV TRV O-ALL CAPINIT V IMP SG2
"<newspapers>"
  "newspaper" { sanomalehti N7-F FRONT } %OBJ IN INDEF N PL
PAR
"<.>"
  "." { . }
```

Ota kirjoja.
Tuo sanomalehtiä.

If the clause has a modal verb, it often trickers the use of nominative accusative in object (24).

```
(24)
"<He>"
  "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
GEN
"<should>"
  "should" { pitäisi } %+FAUXV V AUXMOD SG
"<take>"
  "take" { ottaa V53-C } %-FMAINV TRV V-3INF-ILL V INF SG
"<book>"
  "book" { kirja N9 } %OBJ DEF N SG ACC-N
"<.>"
  "." { . }

"<He>"
  "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
GEN
"<shall>"
  "shall" { pitää V53-F FRONT } %+FAUXV S-GEN V AUXMOD SG
"<take>"
  "take" { ottaa V53-C } %-FMAINV TRV V-3INF-ILL V INF SG
"<book>"
  "book" { kirja N9 } %OBJ DEF N SG ACC-N
"<.>"
  "." { . }

"<He>"
  "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
GEN
"<must>"
  "must" { täytyy } %+FAUXV S-GEN %AUX V AUXMOD SG
"<take>"
  "take" { ottaa V53-C } %-FMAINV TRV V-3INF-ILL V INF SG
"<book>"
  "book" { kirja N9 } %OBJ DEF N SG ACC-N
"<.>"
```

```

      "." { . }
"<He>"
      "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
GEN
"<has_to>"
      "have_to" { täytyä V52-F } %+FMAINV S-GEN MW V PRES SG
"<take>"
      "take" { ottaa V53-C } %-FMAINV TRV V-3INF-ILL V INF SG
"<book>"
      "book" { kirja N9 } %OBJ DEF N SG ACC-N
"<.>"
      "." { . }
"<He>"
      "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
GEN
"<needs>"
      "need" { tarvitsee } %+FMAINV S-GEN V-3INF-ILL V PRES SG
"<to>"
      "to" { NOGLOSS } %INFMARK> INFMARK>
"<take>"
      "take" { ottaa V53-C } %-FMAINV TRV V-3INF-ILL V INF SG INF
"<book>"
      "book" { kirja N9 } %OBJ DEF N SG ACC-N
"<.>"
      "." { . }
e>"

```

Hänen pitäisi ottaa kirja.
Hänen pitää ottaa kirja.
Hänen täytyy ottaa kirja.
Hänen täytyy ottaa kirja.
Hänen tarvitsee ottaa kirja.

If the object is indefinite plural, the object case is partitive also with modal verbs (25).

(25)

```

"<He>"
      "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
GEN
"<should>"
      "should" { pitäisi } %+FAUXV V AUXMOD SG
"<take>"
      "take" { ottaa V53-C } %-FMAINV TRV V-3INF-ILL V INF SG
"<books>"
      "book" { kirja N9 } %OBJ INDEF N PL PAR
"<.>"
      "." { . }
"<He>"
      "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
GEN

```

```
"<shall>"
    "shall" { pitää V53-F FRONT } %+FAUXV S-GEN V AUXMOD SG
"<take>"
    "take" { ottaa V53-C } %-FMAINV TRV V-3INF-ILL V INF SG
"<books>"
    "book" { kirja N9 } %OBJ INDEF N PL PAR
"<.>"
    "." { . }
"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
GEN
"<must>"
    "must" { täytyy } %+FAUXV S-GEN %AUX V AUXMOD SG
"<take>"
    "take" { ottaa V53-C } %-FMAINV TRV V-3INF-ILL V INF SG
"<books>"
    "book" { kirja N9 } %OBJ INDEF N PL PAR
"<.>"
    "." { . }
"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
GEN
"<has_to>"
    "have_to" { täytyä V52-F } %+FMAINV S-GEN MW V PRES SG
"<take>"
    "take" { ottaa V53-C } %-FMAINV TRV V-3INF-ILL V INF SG
"<books>"
    "book" { kirja N9 } %OBJ INDEF N PL PAR
"<.>"
    "." { . }
"<He>"
    "he" { hän Np9 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS SG3
GEN
"<needs>"
    "need" { tarvitsee } %+FMAINV S-GEN V-3INF-ILL V PRES SG
"<to>"
    "to" { NOGLOSS } %INFMARK> INFMARK>
"<take>"
    "take" { ottaa V53-C } %-FMAINV TRV V-3INF-ILL V INF SG INF
"<books>"
    "book" { kirja N9 } %OBJ INDEF N PL PAR
"<.>"
    "." { . }
```

Hänen pitäisi ottaa kirjoja.
Hänen pitää ottaa kirjoja.
Hänen täytyy ottaa kirjoja.
Hänen tarvitsee ottaa kirjoja.

6 Indirect object

Sometimes the clause has two kinds of objects, which are not symmetrical. Often they are differentiated by using such terms as primary object and secondary object, or direct object and indirect object. In (26) are examples of such cases.

(26)
"<I>"
 "i" { minä Np5 } %SUBJ HUM OUT PRON PERS SG1 NOM
"<gave>"
 "give" { antaa V56-J } %+FMAINV TRV O-ALL SVOO V PAST SG1
"<him>"
 "he" { hän Np9 FRONT } %I-OBJ OUT HUM PRON PERS ALL
"<book>"
 "book" { kirja N9 } %OBJ INDEF N SG ACC
"<.>"
 "." { . }
"<We>"
 "we" { me Np6 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS PL1
NOM
"<sent>"
 "send" { lähettää V53-C FRONT } %+FMAINV TRV O-LOC3 SVOO V
PAST PL1
"<them>"
 "they" { he Np10 FRONT } %I-OBJ OUT PRON PERS PL3 ALL
"<message>"
 "message" { sanoma N10 } %OBJ INDEF N SG ACC
"<.>"
 "." { . }

Minä annoin hänelle kirjan.
Me lähetimme heille sanoman.

Note that in English the indirect object and direct object are in strict order. If the order of objects is changed, we must use the prepositional structure for the indirect object (27).

(27)
"<I>"
 "i" { minä Np5 } %SUBJ HUM OUT PRON PERS SG1 NOM
"<gave>"
 "give" { antaa V56-J } %+FMAINV TRV O-ALL SVOO V PAST SG1
"<book>"
 "book" { kirja N9 } %OBJ INDEF N SG ACC
"<to>"
 "to" { NOGLOSS M-ALL } %ADVL PREP
"<him>"
 "he" { hän Np9 FRONT } %<P OUT HUM PRON PERS SG3 ALL
"<.>"

```
"." { . }  
"<We>"  
  "we" { me Np6 FRONT } %SUBJ OUT HUM CAPINIT PRON PERS PL1  
NOM  
"<sent>"  
  "send" { lähettää V53-C FRONT } %+FMAINV TRV O-LOC3 SVOO V  
PAST PL1  
"<message>"  
  "message" { sanoma N10 } %OBJ INDEF N SG ACC  
"<to>"  
  "to" { M-LOC3 } %ADVL PREP  
"<them>"  
  "they" { he Np12 FRONT } %<P PRON PERS PL3 ALL  
"<.>"  
  "." { . }
```

*Minä annoin kirjan hänelle.
Me lähetimme sanoman heille.*

7 Conclusion

The translation of the subject and object from English to Finnish is complicated, because the source language does not encode such features, which are necessary for translation. Therefore, the needed information must be sought indirectly, mostly by encoding the information into the Finnish lexicon. This information can be used for adding needed tags to subjects and objects, so that the correct surface forms can be produced. Although Finnish has default cases for subject and object, many types of deviations occur. All main types of subject and object cases were discussed and demonstrated in this report.